

# MV100 Series Compact Vector Control Drive

## Quick Start and Installation Manual

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Shenzhen Megmeet Drive Technology Co., Ltd.

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# Foreword

Thank you for choosing the MV100 series compact vector control variable speed drive of Shenzhen Megmeet Drive Technology Co., Ltd.

MV100 drive with a new hardware design platform that integrates V / F and no PG vector control mode, provide excellent motor driving performance, this series of drive with excellent performance, perfect functions, compact structure, convenient installation, simple debugging, easy maintenance, is the cost-effective products for drive generic and OEM markets.

The relevant precautions during the installation, wiring, parameter setting and troubleshooting will be detailed in this manual. To ensure the correct installation and operation of the MV100 series drive as well as its high performance, please read carefully this user manual before installing the equipment. This manual shall be kept properly and delivered to the actual users of the drive.

## Safety Precautions



DANGER

Operation without following instructions can cause death or severe personal injury.



WARNING

Operation without following instructions can cause medium or slight personal injury or damage to the product and other equipment.



DANGER

- Please install the product on the incombustible materials (e.g., metal), do not place any combustible material near the product, otherwise, fire may be caused.
- Do not install the product in the environment with explosive gas, otherwise, explosion may be caused.
- Only qualified personal can wire the drive, Never wire the drive unless the input AC supply is completely disconnected
- The grounding terminal of the drive must be reliably grounded, do not operate the drive with wet hands, maintenance operation can not be conducted until 10 minutes has passed after disconnecting the power supply, the bare parts of the terminal lugs in the main circuit must be wrapped with insulation tape, otherwise, electric shock may be caused.
- When powering up the drive that has been stored for over 2 years, the input voltage must be gradually increased with the voltage regulator, otherwise, electric shock and explosion may be caused.
- Only qualified personal can replace the components. Do not leave any wire or metal parts inside the drive, otherwise, fire may be caused.
- After changing the control board, the parameters must be properly set before operating the drive, otherwise, property damage may be caused.



- Do not install the drive in the environment with water splash (e.g., near the water pipe), otherwise, you may suffer the property loss.
- Do not install and operate the drive if it is damaged or its components are not complete, otherwise, fire and human injury may be caused.
- Do not install the product in the place exposed to direct sunlight, otherwise, property damage may be caused.
- Do not short circuit terminal PB and terminal –DC or +DC, otherwise, fire and property damage may be caused.
- Cable lugs must be firmly connected to the terminals of main circuit, otherwise, property damage may be caused.
- Do not connect AC 220V input to the control terminals other than terminal TA, TB, TC otherwise, property damage may be caused.

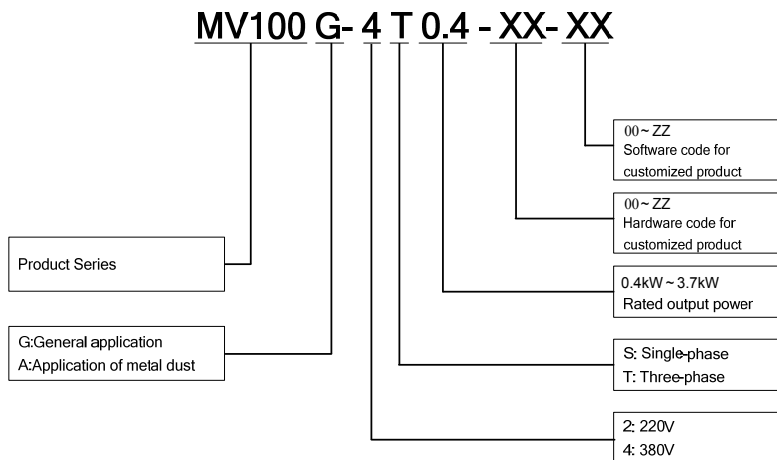
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## Chapter 1 Introduction of MV100 Drive

### 1.1 Product model and nameplate

#### Product model



#### Product nameplate

**MEGMEET**

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**MODEL : MV100G-4T1.5**

**POWER : 1.5kW**

**INPUT : AC 3PH 380-480V 50/60Hz 4.3A**

**OUTPUT : AC 3PH 0-480V 0-2000Hz 4.2A**

0000 0000 0000 0000

**S/N :**   
E6101029220137000001 MV100G-4T1.5

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Shenzhen Megmeet Drive Technology Co., Ltd.

## 1.2 Technical specifications of product

### Various series power specifications

Table 1-1 Three-phase 380V series power specifications

| Three-phase 380V series |                             |  |                              |                              |              |        |
|-------------------------|-----------------------------|--|------------------------------|------------------------------|--------------|--------|
| Drive model             | MV100A-4T0.4                | MV100G-4T0.75<br>MV100A-4T0.75   | MV100G-4T1.5<br>MV100A-4T1.5 | MV100G-4T2.2<br>MV100A-4T2.2 | MV100G-4T3.7 |        |
| Applicable motor power  | 0.4kW                       | 0.75kW   | 1.5kW                        | 2.2kW                        | 3.7kW        |        |
| Applicable motor power  | 0.5HP                       | 1HP  | 2HP                          | 3HP                          | 5HP          |        |
| Input Power             | Input current               | 1.9A   | 3.2A                         | 4.3A                         | 7.1A         | 11.2A  |
|                         | Rated voltage               | Three-phase 380~480V   |                              |                              |              |        |
|                         | Voltage fluctuation range   | ±10% (342~528V)  |                              |                              |              |        |
|                         | Rated frequency             | 50Hz/60Hz  |                              |                              |              |        |
|                         | Frequency fluctuation range | ±5% (47~63Hz)  |                              |                              |              |        |
| Output                  | Rated capacity              | 1.2KVA   | 2KVA                         | 3.3KVA                       | 4.4KVA       | 6.8KVA |
|                         | Rated current               | 1.5A   | 2.5A                         | 4.2A                         | 5.5A         | 8.5A   |
|                         | Output voltage              | 0 ~ the corresponding three-phase input voltage, the error is less than ± 3% |                              |                              |              |        |
|                         | Output frequency            | V/F: 0.00~2000.0Hz (unit: 0.1Hz); vector control: 0~650.00Hz                 |                              |                              |              |        |
|                         | Carrier frequency           | 0.7~15KHz  |                              |                              |              |        |
|                         | Overload capacity           | 1 min for 150% rated current, 0.5 s for 200% rated current                   |                              |                              |              |        |
| Cooling mode            | Forced air cooling          |  |                              |                              |              |        |

Table 1-2 Single-phase 220V series power specifications

| Single-phase 220V series |                             |  |              |              |        |
|--------------------------|-----------------------------|--|--------------|--------------|--------|
| Drive model              | MV100G-2S0.4 <sup>1</sup>   | MV100G-2S0.75 <sup>1</sup>   | MV100G-2S1.5 | MV100G-2S2.2 |        |
| Applicable motor power   | 0.4kW                       | 0.75kW   | 1.5kW        | 2.2kW        |        |
| Applicable motor power   | 0.5HP                       | 1HP  | 2HP          | 3HP          |        |
| Input Power              | Input current               | 6.5A   | 9.7A         | 15.4A        | 24A    |
|                          | Rated voltage               | Single-phase 200~240V  |              |              |        |
|                          | Voltage fluctuation range   | ±10% (180~264V)  |              |              |        |
|                          | Rated frequency             | 50Hz/60Hz  |              |              |        |
|                          | Frequency fluctuation range | ±5% (47~63Hz)  |              |              |        |
| Output                   | Rated capacity              | 1KVA   | 1.6KVA       | 2.9KVA       | 4.2KVA |
|                          | Rated current               | 2.5A   | 4.2A         | 7.5A         | 11A    |
|                          | Output voltage              | 0 ~ the corresponding three-phase input voltage, the error is less than ± 3% |              |              |        |
|                          | Output frequency            | V/F: 0.00~2000.0Hz (unit: 0.1Hz); vector control: 0~650.00Hz                 |              |              |        |
|                          | Carrier frequency           | 0.7~15KHz  |              |              |        |
|                          | Overload capacity           | 1 min for 150% rated current, 0.5 s for 200% rated current                   |              |              |        |
| Cooling mode             | Forced air cooling          |  |              |              |        |

Note: 1 means being developed

Table 1-3 Three-phase 220V series power specifications

| Three-phase 380V series |                             |  |              |              |        |
|-------------------------|-----------------------------|--|--------------|--------------|--------|
| Drive model             | MV100G-2T0.4 <sup>1</sup>   | MV100G-2T0.75 <sup>1</sup>   | MV100G-2T1.5 | MV100G-2T2.2 |        |
| Applicable motor power  | 0.4kW                       | 0.75kW   | 1.5kW        | 2.2kW        |        |
| Applicable motor power  | 0.5HP                       | 1HP  | 2HP          | 3HP          |        |
| Input Power             | Input current               | 2.7A   | 5.1A         | 9A           | 15A    |
|                         | Rated voltage               | Three-phase 200~240V   |              |              |        |
|                         | Voltage fluctuation range   | ±10% (180~264V)  |              |              |        |
|                         | Rated frequency             | 50Hz/60Hz  |              |              |        |
|                         | Frequency fluctuation range | ±5% (47~63Hz)  |              |              |        |
| Output                  | Rated capacity              | 1KVA   | 1.6KVA       | 2.9KVA       | 4.2KVA |
|                         | Rated current               | 2.5A   | 4.2A         | 7.5A         | 11A    |
|                         | Output voltage              | 0 ~ the corresponding three-phase input voltage, the error is less than ± 3% |              |              |        |
|                         | Output frequency            | V/F: 0.00~2000.0Hz (unit: 0.1Hz); vector control: 0~650.0Hz                  |              |              |        |
|                         | Carrier frequency           | 0.7~15KHz  |              |              |        |
|                         | Overload capacity           | 1 min for 150% rated current, 0.5 s for 200% rated current                   |              |              |        |
| Cooling mode            | Forced air cooling          |  |              |              |        |

Note: 1 means being developed

## Control Specifications

Table 1-4 Control Specifications

|                            |                                |  |
|----------------------------|--------------------------------|--|
| Operation control features | Control mode                   | Vector control without PG, V/F control without PG  |
|                            | Maximum output frequency       | 2000.0Hz for V/F control, 650.0Hz for vector control   |
|                            | Speed adjusting range          | 1: 200 (vector control without PG)   |
|                            | Speed control precision        | ±0.2% (vector control without PG)  |
|                            | Speed fluctuation              | ±0.3% (vector control without PG)  |
|                            | Torque response                | <10ms (vector control without PG)  |
|                            | Torque control                 | The torque control precision is 7.5% when vector control without PG  |
|                            | Startup torque                 | 150% @ 0Hz (vector control without PG)   |
| Product functions          | Key functions                  | Fast tracking, torque limit, multi-stage speed operation, auto-tuning, skip frequency operation, PID adjustment, non-stop upon instantaneous power interruption, switching of multi-command, MODBUS communication, torque control, torque and speed control mode switching, automatic restart, DC braking, dynamic braking, dwell function |
|                            | Basic frequency                | 0.1Hz~2000.0Hz   |
|                            | Startup frequency              | 0.0Hz~60.0Hz   |
|                            | Frequency setting mode         | Digital panel setting, terminal UP/DN setting, host device communication setting, analog setting (A1/AI2), terminal pulse setting  |
|                            | Acceleration/deceleration time | 0.1~3600.0 (unit can be selected among 0.1s, s and min)  |



|                     |   |  |
|---------------------|---|--|
|                     | Dynamic braking capacity  | Built-in braking unit, braking rate 0.0~100.0%   |
|                     | DC braking capacity   | Initial frequency: 0.00Hz~60.00Hz<br>Braking time: 0.1s~30.0s<br>Braking current: 0%~100%                                  |
| Protection function | Overcurrent, overvoltage, undervoltage , overheat , overload protection, etc. |  |
| Others              | Efficiency  | ≥93%   |
|                     | Installation method   | Wall-mounted   |
|                     | Protection degree   | IP20   |
|                     | Cooling mode  | Air cooling  |
| Environment         | Operating site  | Indoor, away from direct sunlight, free from corrosive gas, combustible gas, oil mist, water vapor, water dripping or salt |
|                     | Altitude  | Used at the place lower than 1000m, (derated at the place above 1000m, derated 1% for every increase of 100m)              |
|                     | Ambient temperature   | -10℃~+40℃ (derated when used in the ambient temperature of 40℃~50℃)  |
|                     | Humidity  | 5%~95%RH, non-condensing   |
|                     | Vibration   | less than 5.9m/s <sup>2</sup> (0.6g)   |
|                     | Storage temperature   | -40℃~+70℃  |

### 1.3 Outline, mounting dimensions and gross weight of drive

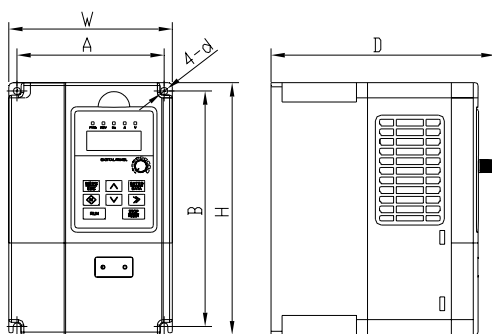


Fig. 1-1 Outline, mounting dimensions for products

Table 1-5 Outline, mounting dimensions and gross weight

| Enclosure model | A (mm) | B (mm) | H (mm) | W (mm) | D (mm) | Diameter of mounting aperture (mm) | Gross weight ±0.5 (kg) |
|-----------------|--------|--------|--------|--------|--------|------------------------------------|------------------------|
| G1R1            | 78     | 137    | 147    | 88     | 163    | 4.5                                | 1.3                    |
| G1R2            | 107    | 171    | 183    | 119    | 163    | 5.5                                | 2                      |

Table 1-6 Model list

| Series            | 0.4kW                     | 0.75kW                     | 1.5kW         | 2.2kW        | 3.7kW        |
|-------------------|---------------------------|----------------------------|---------------|--------------|--------------|
| Three-phase 380V  |                           | MV100G-4T0.75              | MV100G-4T1.5  | MV100G-4T2.2 | MV100G-4T3.7 |
|                   | MV100A-4T0.4              | MV100A-4T0.75              | MV100A-4T1.5  | MV100A-4T2.2 |              |
| Single-phase 220V | MV100G-2S0.4 <sup>1</sup> | MV100G-2S0.75 <sup>1</sup> | MV100G-2S 1.5 | MV100G-2S2.2 |              |
| Three-phase 220V  | MV100G-2T0.4 <sup>1</sup> | MV100G-2T0.75 <sup>1</sup> | MV100G-2T1.5  | MV100G-2T2.2 |              |

Note: In the table 1-6 without shading part of the product corresponding enclosure model G1R1, with shading part of the product corresponding enclosure model G1R2.

Note: 1 means being developed

#### 1.4 Outline and mounting dimensions of operation panel

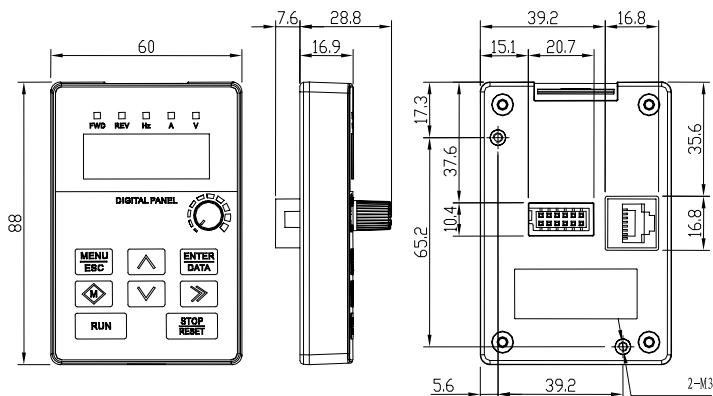


Fig. 1-2 Outline and mounting dimensions of operation panel

## Chapter 2 Wiring of Drive

### 2.1 Wiring and configuration of main circuit terminals

#### Terminal type 1


Applicable models: Three-phase 380V or 220V Series

|   |      |      |      |    |     |     |      |      |      |
|---|------|------|------|----|-----|-----|------|------|------|
|  | R/L1 | S/L2 | T/L3 | PB | -DC | +DC | U/T1 | V/T2 | W/T3 |
|---|------|------|------|----|-----|-----|------|------|------|

#### Terminal type 2

Applicable models: Single-phase 220V Series

|   |   |  |   |    |     |     |      |      |      |
|---|---|--|---|----|-----|-----|------|------|------|
|  | L |  | N | PB | -DC | +DC | U/T1 | V/T2 | W/T3 |
|---|---|--|---|----|-----|-----|------|------|------|

| Terminal  | Function  |
|---|---|
| R/L1,S/L2,T/L3  | Three-phase AC 380V or 220V input terminals   |
| L N   | Single-phase AC 220V input terminals  |
| +DC   | DC positive bus output terminal   |
| +DC PB  | Reserved terminals for an external braking resistor (configuration information of built-in braking unit refer to Table 1-6) |
| -DC   | DC negative bus output terminals  |
| U/T1,V/T2,W/T3  | Three-phase AC output terminals   |
|  | Safety grounding terminal   |

## Recommended fuse capacity and cross section area of the copper-cored insulation wire

Table 2-1 Recommended fuse capacity and cross section area of the copper-cored insulation wire

| Series               | Drive model                 | MCCB<br>circuit<br>breaker<br>(A) | Main circuit<br>(mm <sup>2</sup> ) |               |                |                | Control<br>circuit<br>(mm <sup>2</sup> ) |
|----------------------|-----------------------------|-----------------------------------|------------------------------------|---------------|----------------|----------------|--|
|                      |                             |                                   | Input<br>wire                      | Brake<br>wire | Output<br>wire | Ground<br>wire |  |
| Three-phase<br>380V  | MV100A-4T0.4                | 10                                | 1.0                                | 1.0           | 1.0            | 2.5            | 1  |
|                      | MV100G-4T0.75,MV100A-4T0.75 | 10                                | 1.0                                | 1.0           | 1.0            | 2.5            | 1  |
|                      | MV100G-4T1.5,MV100A-4T1.5   | 16                                | 1.5                                | 1.0           | 1.5            | 2.5            | 1  |
|                      | MV100G-4T2.2,MV100A-4T2.2   | 16                                | 1.5                                | 1.5           | 1.5            | 2.5            | 1  |
|                      | MV100G-4T3.7                | 25                                | 2.5                                | 1.5           | 2.5            | 2.5            | 1  |
| Single-phase<br>220V | MV100G-2S0.4 <sup>1</sup>   | 16                                | 1.5                                | 1.0           | 1.0            | 2.5            | 1  |
|                      | MV100G-2S0.75 <sup>1</sup>  | 20                                | 2.5                                | 1.0           | 1.0            | 2.5            | 1  |
|                      | MV100G-2S1.5                | 32                                | 4                                  | 1.5           | 2.5            | 4              | 1  |
|                      | MV100G-2S2.2                | 50                                | 6                                  | 1.5           | 2.5            | 6              | 1  |
| Three-phase<br>220V  | MV100G-2T0.4 <sup>1</sup>   | 16                                | 1                                  | 1.0           | 1.0            | 2.5            | 1  |
|                      | MV100G-2T0.75 <sup>1</sup>  | 16                                | 1.5                                | 1.0           | 1.0            | 2.5            | 1  |
|                      | MV100G-2T1.5                | 20                                | 2.5                                | 1.5           | 2.5            | 2.5            | 1  |
|                      | MV100G-2T2.2                | 20                                | 4                                  | 1.5           | 2.5            | 4              | 1  |

Note: 1 means being developed

## Recommended braking resistor specifications

Braking resistor connected between PB and + DC, the selection is as shown in the following table.

Table 2-2 Recommended braking resistor specifications and configuration

| Series               | Drive model                  | Specification | Utilization<br>(%) | Braking torque<br>(%) | Maximum continuous<br>use time (s) |
|----------------------|------------------------------|---------------|--------------------|-----------------------|------------------------------------|
| Three-phase<br>380V  | MV100A-4T0.4                 | 400Ω/300W     | 10                 | 100                   | 10                                 |
|                      | MV100G-4T0.75, MV100A-4T0.75 | 400Ω/300W     | 10                 | 100                   | 10                                 |
|                      | MV100G-4T1.5, MV100A-4T1.5   | 300Ω/500W     | 10                 | 100                   | 10                                 |
|                      | MV100G-4T2.2, MV100A-4T2.2   | 200Ω/650W     | 10                 | 100                   | 10                                 |
|                      | MV100G-4T3.7                 | 125Ω/1000W    | 10                 | 100                   | 10                                 |
| Single-phase<br>220V | MV100G-2S0.4 <sup>1</sup>    | 150Ω/180W     | 10                 | 100                   | 10                                 |
|                      | MV100G-2S0.75 <sup>1</sup>   | 100Ω/250W     | 10                 | 100                   | 10                                 |
|                      | MV100G-2S1.5                 | 70Ω/400W      | 10                 | 100                   | 10                                 |
|                      | MV100G-2S2.2                 | 50Ω/600W      | 10                 | 100                   | 10                                 |
| Three-phase<br>220V  | MV100G-2T0.4 <sup>1</sup>    | 150Ω/180W     | 10                 | 100                   | 10                                 |
|                      | MV100G-2T0.75 <sup>1</sup>   | 100Ω/250W     | 10                 | 100                   | 10                                 |
|                      | MV100G-2T1.5                 | 70Ω/400W      | 10                 | 100                   | 10                                 |
|                      | MV100G-2T2.2                 | 50Ω/600W      | 10                 | 100                   | 10                                 |

Note: 1 means being developed

## Wiring for basic operation

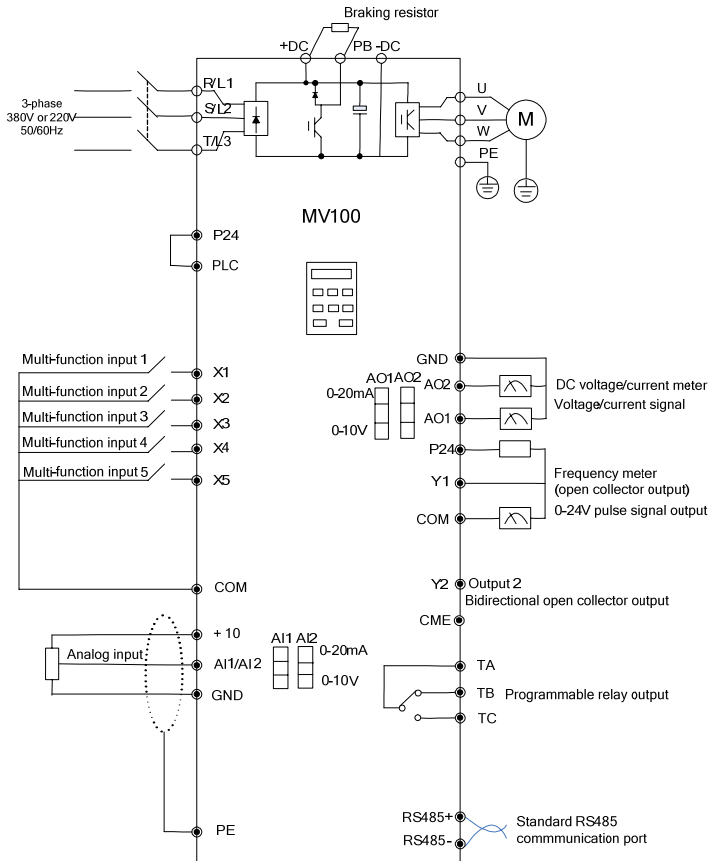


Fig. 2-1 Basic wiring diagram 1

Fig. 2-1 applicable models: Three-phase 380V or 220V series

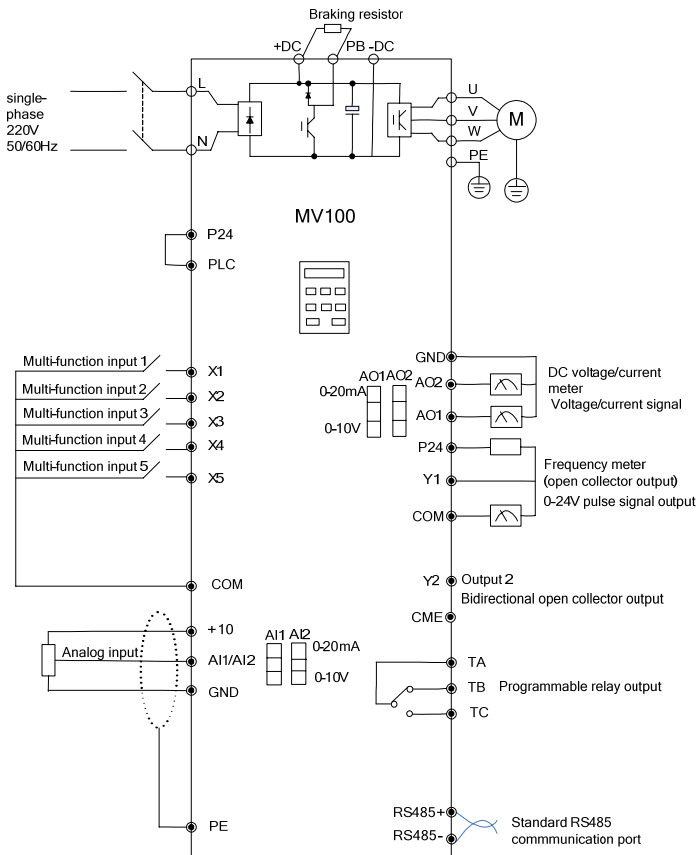


Fig. 2-2 Basic wiring diagram 2

Fig. 2-2 applicable models: single-phase 220V series

Note: "○" in the figure is main circuit terminal and "●" in the figure is control circuit terminal.

## 2.2 Wiring and configuration of control circuit

The arrangement sequence diagram of the control circuit terminals



Wiring of control circuit terminals

It is suggested to use the wire with cross section area over 1mm<sup>2</sup> as the connecting wire of the control circuit terminals.

## Control terminal function

Table 2-3 Control terminal function

| Terminal | Function  | Specifications and others  |
|----------|---|--|
| GND      | The reference ground for +10 V power, analog signals and communication signals          | Internal isolated with COM   |
| +10      | To provide +10V reference power for external load(reference grounding: GND)             | Allowable maximum output current: 10mA   |
| AI1      | Analog input, voltage/current is selected via the jumper(reference grounding: GND)      | Input voltage range: 0~10V (input resistance: 20kΩ)  |
| AI2      |   | Input current range: 0~20mA (input resistance: 246Ω)   |
| AO1      | Analog output, voltage/current is selected via the jumper(reference grounding: GND)     | Voltage output range: 0/2~10V  |
| AO2      |   | Current output range: 0/4~20mA   |
| +RS485-  | RS485 communication interface, differential signal (reference grounding: GND)           | "+" Indicates the positive end, "-" indicates the negative end, use twisted pair wire or shielded wire.  |
| COM      | The reference ground for 24V power, multi-function input                                | Internal isolated with GND, CME  |
| P24      | To provide +24V power for external load(reference grounding: GND)                       | Maximum output current: 200mA  |
| X1       | Common signal multi-function input, opto-isolated inputs (common terminal: PLC or COM). | Input resistance: R=2kΩ  |
| X2       |   | Maximum input frequency: 100kHz  |
| X3       |   | Input voltage range: 20V~30V   |
| X4       |   | Input resistance: R=3.1kΩ  |
| X5       |   | Maximum input frequency: 200kHz  |
| PLC      | Multi-function input terminal common terminal   | Short with P24 upon delivery<br>Common terminal for X1~X5, internal isolated with P24  |
| CME      | Multi-function output common terminal   | Internal isolated with COM、PLC、GND   |
| Y1       | Open collector output terminal 1 / DO pulse output terminal(common terminal: COM)       | Opto-isolated output<br>Maximum operating voltage: 30V<br>Maximum output current: 50mA<br>The DO pulse output frequency range depends on P09.23 and the maximum value is 50kHz |
| Y2       | Open collector output terminal 2(common terminal: CME)                                  | Opto-isolated output<br>Maximum operating voltage: 30V<br>Maximum output current: 50mA   |
| TA       | Relay output  | TA-TB: normally closed; TA-TC: normally open   |
| TB       |   | Contact capacity:<br>AC 250V/2A (COSΦ=1)   |
| TC       |   | AC 250V/1A (COSΦ=0.4)<br>DC 30V/1A   |

## Chapter 3 Operation Panel

### Panel appearance

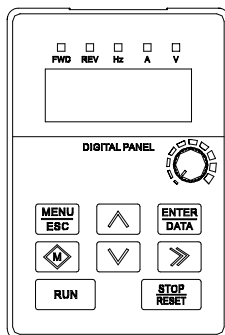


Fig. 3-1 Panel appearance

### Panel function description

Table 3-1 Panel function description

| Panel structure | Panel function name and description of each part   |
|-----------------|--|
| Keys            | MENU/ESC: Program/exit key $\wedge$ : Increase key    ENTER/DATA: Function/data key<br>M: Multi-functional key $\nabla$ : Decrease key $\gg$ : Shift key    RUN: Run key<br>STOP/RESET: Stop/reset key |
| Digital tube    | Display the function code number and content or other parameters   |
| Potentiometer   | Run frequency setting  |
| Status lights   | FWD: forward indicator    REV: Reverse Indicator   |
| Unit lights     | Hz: Frequency Indicator    A: Current indicators    V: Voltage Indicator   |

### Panel operation example

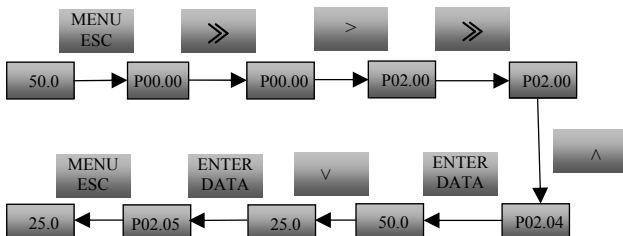


Fig. 3-2 Operation example for setting the set frequency



## Chapter 4 Parameter List

### Explanation to the terms in the function code parameter table

| Table field          | Explanation   |
|----------------------|---|
| Function code number | Representing the number of the function code, e.g. P00.00   |
| Function code name   | Name of the function code, explaining it  |
| Leave-factory value  | The value of the function code after restoring the leave-factory settings   |
| Set range            | The minimum and maximum values of the function code allowed to set  |
| Unit                 | V: voltage; A: current; °C: temperature; Ω: resistance; mH: inductance; rpm: rotate speed; %: percentage; bps: baud rate; Hz/ kHz: frequency; ms/s/min/h/kh: time; kW: power            |
| Property             | ○: Means the function code can be changed during running; ×: Means the function code can be changed in the stop state; * : Means the function code can be read only, can not be changed |

### Basic menu function code parameter table

| Function code                | Name                 | Setting range   | Default value |
|------------------------------|----------------------|---|---------------|
| Group P00: System management |                      |   |               |
| P00.00                       | User password        | 0: No password<br>Other: Password protection  | 0             |
| P00.01                       | Parameter protection | 0: All the data can be changed;<br>1: Only the main set frequency (digital setting P02.04) and this function code can be changed<br>2: Only this function code can be changed | 1             |

| Function code | Name                       | Setting range   | Default value |
|---------------|----------------------------|---|---------------|
| P00.02        | Parameter initialization   | 0: Parameter changing status<br>1: Clear fault memory information<br>2: Restore to leave-factory value  | 0             |
| P00.03        | Parameter copy             | 0: Disabled<br>1: Uploading parameter<br>2: Downloading parameters<br>3: Downloading parameters (except the motor parameters)<br>Note: The drive parameters will not be uploaded/downloaded   | 0             |
| P00.04        | Selection of key functions | Unit place: Manufacturer commissioning<br>Tens place: Function selection of the STOP/RESET key<br>0: The STOP key is valid only in the panel control mode<br>1: The STOP key is valid in all control modes<br>Note: The RESET key is valid in any control mode<br>Hundreds place: Function selection of M key<br>0: No function<br>1: JOG<br>2: FWD/REV<br>3: Command channel switching 1 (valid only in stop status)<br>4: Command channel switching 2 (valid both in stop & running status)<br>5: Panel locking function<br>Thousands place: Panel locking function | 0100H         |

| Function code | Name   | Setting range  | Default value |
|---------------|--|--|---------------|
|               |  | 0: Lock all the keys<br>1: Lock all the keys except the STOP key<br>2: Lock all the keys except the >> key<br>3: Lock all the keys except the RUN & STOP key   |               |
| P00.05        | LED display parameter selection 1 when running | Binary setting:<br>0: No display; 1: Display<br>Unit place of LED:<br>BIT0: Output frequency (Hz)<br>BIT1: Preset frequency (Hz ,flashing)<br>BIT2: Output current (A)<br>Tens place of LED:<br>BIT0: Running rotating speed (r/min)<br>BIT1: Set rotating speed (r/min, flashing)<br>BIT2: Running line speed (m/s)<br>BIT3: Preset line speed (m/s, flashing)<br>Hundreds place of LED:<br>BIT0: Output power<br>BIT1: Output toque (%)<br>Note: the default display shall be output frequency when all the parameters are 0 | 007H          |
| P00.06        | LED display parameter selection 2 when running | Binary setting:<br>0: No display; 1: Display<br>Unit place of LED:<br>BIT0: Output voltage (V)<br>BIT1: AI1 (V)<br>BIT2: AI2 (V)<br>BIT3: Reserved<br>Tens place of LED:<br>BIT0: Analog closed loop feedback (%)  | 00H           |

| Function code                        | Name                                      | Setting range   | Default value |
|--------------------------------------|---|---|---------------|
|                                      |   | BIT1: Analog closed loop reference (% ,flashing)<br>BIT2: Terminal status (without unit)<br>BIT3: DC bus voltage  |               |
| P00.07                               | LED display parameter selection when stop | Binary setting:<br>0: No display; 1: Display<br>Unit place of LED:<br>BIT0: Preset frequency (Hz)<br>BIT1: Running speed (r/min)<br>BIT2: Preset speed (r/min)<br>BIT3: DC bus voltage (V)<br>Tens place of LED:<br>BIT0: Running line speed (m/s)<br>BIT1: Preset line speed (m/s)<br>BIT2: Analog closed loop feedback (%)<br>BIT3: Analog closed reference (%)<br>Hundreds place of LED:<br>BIT0: AI1 (V)<br>BIT1: AI2 (V)<br>BIT2: Reserved<br>BIT3: Terminal status (without unit)<br>Note: The default display shall be set frequency when all the parameters are 0 | 009H          |
| Group P01: Status display parameters |   |   |               |
| P01.00                               | Main reference frequency channel          | 0: Disabled<br>1: Digital reference 1: Keyboard $\wedge \vee$ reference<br>2: Digital reference 2: Terminal UP/DN reference<br>3: Digital reference 3:Serial port   | 0             |

| Function code | Name                              | Setting range  | Default value |
|---------------|-----------------------------------|--|---------------|
|               |                                   | communication reference<br>4: AI analog reference<br>5: Terminal PULSE reference<br>6: Panel potentiometer reference<br>7: Process closed loop PID                                 |               |
| P01.01        | Main reference set frequency      | -2000.0~2000.0Hz   | 0.0           |
| P01.02        | Auxiliary reference set frequency | -2000.0~2000.0Hz   | 0.0           |
| P01.03        | Set frequency                     | -2000.0~2000.0Hz   | 0.0           |
| P01.04        | Output frequency                  | -2000.0~2000.0Hz   | 0.0           |
| P01.05        | Output voltage                    | 0~480V   | 0             |
| P01.06        | Output current                    | 0.0~3Ie  | 0.0           |
| P01.07        | Output torque                     | -300.0~+300.0%   | 0.0           |
| P01.08        | Motor power                       | 0.0%~200.0% (relative to the rated power of the motor)   | 0.0           |
| P01.09        | Bus voltage                       | 0~800V   | 0             |
| P01.10        | Operation state of the drive      | 0~7FFFH;<br>Bit 0: RUN/STOP<br>Bit 1: REV/FWD<br>Bit 2: Running at zero speed<br>Bit 3: Accelerating<br>Bit 4: Decelerating<br>Bit 5: Running at constant speed<br>Bit 6: Reserved | 0             |

| Function code | Name                                  | Setting range  | Default value |
|---------------|---------------------------------------|--|---------------|
|               |                                       | Bit 7: Tuning<br>Bit 8: Over-current limiting<br>Bit 9: DC over-voltage limiting<br>Bit 10: Torque limiting<br>Bit 11: Speed limiting<br>Bit 12: Drive in fault<br>Bit 13: Speed control<br>Bit 14: Torque control |               |
| P01.11        | State of digital input terminal       | 0~FFH, 0: off; 1: on<br>The high-speed pulse reference will not be refreshed synchronously   | 00            |
| P01.12        | State of digital output terminal      | 0~FH, 0: open; 1: close<br>The high-speed pulse output will not be refreshed synchronously   | 0             |
| P01.13        | AI1 input voltage                     | 0.00~0.00V   | 0.00          |
| P01.14        | AI2 input voltage                     | 0.00~10.00V  | 0.00          |
| P01.15        | AO1 output                            | 0.0~100.0%<br>(percentage relative to the full range)  | 0.0           |
| P01.16        | AO2 output                            | 0.0~100.0%<br>(percentage relative to the full range)  | 0.0           |
| P01.17        | Torque reference                      | -300.0%~300.0% (relative to the rated torque of the motor)   | 0.0           |
| P01.18        | X1 terminal pulse frequency reference | 0.0~100.0kHz   | 0.0           |
| P01.19        | Radiator 1 temperature                | -40.0~100.0°C  | 0.0           |

| Function code               | Name                                      | Setting range  | Default value |
|-----------------------------|---|--|---------------|
| P01.20                      | Accumulated power-on hours                | 0 ~ maximum 65535 hours  | 0             |
| P01.21                      | Accumulated running hours                 | 0 ~ maximum 65535 hours  | 0             |
| Group P02: Basic parameters |   |  |               |
| P02.00                      | Control mode selection                    | Induction motor control mode selection<br>0: Vector control without PG<br>1: V/F control without PG  | 1             |
| P02.01                      | Running command channel selection         | 0: Keyboard control<br>1: Terminal control<br>2: Communication control   | 0             |
| P02.02                      | Running direction setting                 | 0: Forward running; 1: Reverse running   | 0             |
| P02.03                      | Main reference frequency source selection | 0: Digital reference 1: Keyboard $\wedge \vee$ reference<br>1: Digital reference 2: Terminal UP/DN reference<br>2: Digital reference 3: Serial port communication reference<br>3: AI analog reference<br>4: Terminal PULSE reference<br>5: Panel potentiometer reference<br>6: Process closed loop PID | 0             |
| P02.04                      | Digital setting of main reference         | P02.14~P02.13  | 50.0          |

| Function code | Name   | Setting range  | Default value |
|---------------|--|--|---------------|
|               | frequency  |  |               |
| P02.05        | Main & auxiliary reference digital frequency control | Unit place of LED: Main digital frequency saving control<br>0: Save when power down<br>1: Do not save when power down<br>Tens place of LED: Main digital frequency control when stop<br>0: Maintained when stop<br>1: Reset P02.04 when stop<br>Hundreds place of LED: Auxiliary digital frequency saving control<br>0: Save when power down<br>1: Do not save when power down<br>Thousands place of LED: Auxiliary digital frequency control when stop<br>0: Maintained when stop<br>1: Reset when stop<br>Note: The unit and tens places are only applicable for P02.03=0, 1, 2 hundreds and thousands places are only applicable for P02.06=1, 2, 3 | 0000H         |
| P02.06        | Auxiliary reference frequency source selection       | 0: No auxiliary reference<br>1: Digital reference 1: Keyboard $\wedge \vee$ reference<br>2: Digital reference 2: Terminal UP/DN reference<br>3: Digital reference 3: Serial port communication reference<br>4: AI analog reference<br>5: Terminal PULSE reference  | 0             |

| Function code | Name                                   | Setting range  | Default value |
|---------------|--|--|---------------|
|               |  | 6: Panel potentiometer reference<br>7: Process closed loop PID |               |
| P02.07        | Digital setting of auxiliary reference | 0.0~2000.0Hz   | 0.0           |
| P02.08        | Main/auxiliary reference calculation   | 0: +<br>1: -   | 0             |
| P02.09        | Acceleration time                      | 0.0~3600.0   | 6.0           |
| P02.10        | Deceleration time                      | 0.0~3600.0   | 6.0           |
| P02.11        | Unit of acceleration/deceleration time | 0: 0.1s<br>1: s<br>2: min                                      | 1             |
| P02.12        | Maximum output frequency               | MAX(50.0, upper limit frequency P02.13)~ 2000.00Hz             | 50.0          |
| P02.13        | Upper limit frequency                  | P02.14~P02.12  | 50.0          |
| P02.14        | Lower limit frequency                  | 0.0~P02.13   | 0.0           |
| P02.15        | Upper limit of skip frequency          | P02.16~2000.0  | 0.0           |
| P02.16        | Lower limit of skip frequency          | 0.0~P02.15   | 0.0           |
| P02.17        | Jog acceleration                       | 0.1~60.0s  | 6.0           |

| Function code                      | Name                           | Setting range   | Default value      |
|------------------------------------|--------------------------------|---|--------------------|
|                                    | /deceleration time             |   |                    |
| P02.18                             | Jog interval                   | 0.0~100.0s  | 0.0                |
| P02.19                             | Frequency of jog running       | 0.1~50.0Hz  | 5.0                |
| <b>Group P03: Motor parameters</b> |                                |   |                    |
| P03.00                             | Rated power of motor           | 0.1~999.9kW   | Depending on model |
| P03.01                             | Rated voltage of motor         | 0~ rated voltage of drive (P98.05)  | Depending on model |
| P03.02                             | Rated current of motor         | 0.1~999.9A  | Depending on model |
| P03.03                             | Rated frequency of motor       | 1.0~2000.0Hz  | Depending on model |
| P03.04                             | Rated rotating speed of motor  | 0~6000rpm   | Depending on model |
| P03.05                             | Power factor of motor          | 0.001~1.000<br>It shall be used when calculating the motor parameters with the nameplates | Depending on model |
| P03.06                             | Stator resistance of motor %R1 | 0.00%~50.00%  | Depending on model |
| P03.07                             | Leakage inductance of motor %X | 0.00%~50.00%  | Depending on model |
| P03.08                             | Rotator resistance             | 0.00%~50.00%  | Depending on model |

| Function code  | Name                                       | Setting range  | Default value      |
|--|--|--|--------------------|
|  | of motor %R2                               |  |                    |
| P03.09   | Mutual inductance of motor %Xm             | 0.0%~2000.0%   | Depending on model |
| P03.10   | No-load current (I <sub>0</sub> ) of motor | 0.1~999.9A   | Depending on model |
| P03.11   | Overload protection factor of motor        | 20.0%~110.0%<br>Set action level (%) = motor rated current/ drive rated current × 100<br>Low speed compensation actual action level = set action level × (output frequency/ 30HZ × 45 + 55)<br>Actual converted current of overload protection = sampling current/overload protection action level | 100.0              |
| P03.12   | Parameter auto-tuning                      | 0: Disabled<br>1: Enabled (motor in static status)<br>2: Enabled (motor in rotate status)<br>3: Reserved (according to the nameplate setting)  | 0                  |
| <b>Group P05: Vector and torque control parameters</b> |  |  |                    |
| P05.00   | ASR1-P                                     | 0.1~200.0  | 20.0               |
| P05.01   | ASR1-I                                     | 0.000~10.000s  | 0.200              |
| P05.02   | ASR switching frequency 1                  | 0.0%~50.0%   | 10.0               |
| P05.03   | ASR2-P                                     | 0.1~200.0  | 20.0               |
| P05.04   | ASR2-I                                     | 0.000~10.000s  | 0.600              |

| Function code                           | Name                        | Setting range   | Default value |
|---|-----------------------------|---|---------------|
| P05.05                                  | ASR switching frequency 2   | 0.0%~100.0%   | 20.0          |
| P05.06                                  | Speed/torque control mode   | 0: Speed control mode<br>1: Torque control mode   | 0             |
| P05.07                                  | Torque reference selection  | 0: AI reference<br>1: Terminal PULSE reference<br>2: Communication reference<br>3: Closed loop output<br>4: Digital reference | 0             |
| P05.08                                  | Digital reference of torque | -300.0%~300.0%  | 0.0           |
| P05.09                                  | Electric torque limit value | 0.0%~+300.0%  | 180.0         |
| P05.10                                  | Braking torque limit value  | 0.0%~+300.0%  | 180.0         |
| P05.11                                  | FWD speed limit value       | 0.0%~+100.0%  | 100.0         |
| P05.12                                  | REV speed limit value       | 0.0%~+100.0%  | 100.0         |
| <b>Group P07: VF control parameters</b> |                             |   |               |
| P07.00                                  | Motor V/F curve setting     | 0: User-customized V/F curve<br>1: 2 times power curve<br>2: 1.7 times power curve<br>3: 1.2 times power curve                | 0             |
| P07.01                                  | Motor V/F frequency 2       | P07.03~P02.12   | 0.0           |
| P07.02                                  | Motor V/F                   | P07.04~100.0%   | 0.0           |

| Function code                                       | Name                                | Setting range   | Default value |
|---|-------------------------------------|---|---------------|
|   | voltage 2                           |   |               |
| P07.03  | Motor V/F frequency 1               | 0.0~P07.01  | 0.0           |
| P07.04  | Motor V/F voltage 1                 | 0.0~P07.02  | 0.0           |
| P07.05  | Motor torque increase               | 0.0%~30.0%  | 0.0           |
| P07.06  | Motor torque increase cut-off point | 0.0%~50.0% (corresponds to P03.03)  | 10.0          |
| P07.07  | Motor stable factor                 | 0~255   | 10            |
| P07.08  | AVR function                        | 0: Disabled<br>1: Always enabled<br>2: Disabled only in deceleration situation  | 2             |
| <b>Group P08: Start and stop control parameters</b> |                                     |   |               |
| P08.00  | Startup mode                        | 0: Start from the startup frequency<br>1: Start from the startup frequency after braking<br>2: Start after speed tracking (including the judgment of direction) | 0             |
| P08.01  | Startup frequency                   | 0.0~MIN (P02.13,60.0)   | 0.0           |
| P08.02  | Startup frequency retention time    | 0.00~10.00s   | 0.00          |
| P08.03  | Startup DC braking current          | 0.0% ~ 100.0% of the rated current of the drive   | 0.0           |

| Function code | Name                                    | Setting range   | Default value |
|---------------|---|---|---------------|
| P08.04        | Startup DC braking time                 | 0.00 (Disabled)<br>0.01~30.00s  | 0.00          |
| P08.05        | Stop mode                               | 0: Decelerate to stop<br>1: Coast to stop<br>2: Decelerate to stop + DC braking                 | 0             |
| P08.06        | Stop frequency detection                | 0.0~150.0Hz   | 0.5           |
| P08.07        | Stop frequency detection retention time | 0.00~10.00s   | 0.00          |
| P08.08        | Stop speed detection mode               | 0: Speed set value (the only one detection mode under the V/F mode)<br>1: Speed detection value | 1             |
| P08.09        | Initial frequency for stop DC braking   | 0.0~MIN (P02.13,60.0)   | 0.0           |
| P08.10        | Waiting time for stop DC braking        | 0.00~10.00s   | 0.00          |
| P08.11        | Stop DC braking current                 | 0.0% ~ 100.0% of the rated current of the drive   | 0.0           |
| P08.12        | Stop DC braking time                    | 0.0 (Disabled)<br>0.01~30.00s   | 0.00          |
| P08.13        | Selecting restart function upon         | 0: Disabled<br>1: Enabled   | 0             |

| Function code                              | Name                                      | Setting range  | Default value |
|--|---|--|---------------|
|  | power fault                               |  |               |
| P08.14                                     | Waiting time for restart upon power fault | 0.0~3600.0s  | 0.0           |
| P08.15                                     | Anti-reverse selection                    | 0: Reverse operation is allowed<br>1: Reverse operation is prohibited (run at zero frequency upon reverse running command)           | 0             |
| P08.16                                     | Use ratio of dynamic braking              | 0.0~100.0%   | 0.0           |
| P08.17                                     | Braking startup voltage                   | 380V Model: 700~780V   | 750           |
|  |   | 220V Model: 330~370V   | 350           |
| Group P09: Digital input/output parameters |   |  |               |
| P09.00                                     | Function selection of input terminals X1  | 0: No function<br>1: Forward running (FWD)<br>2: Reverse running (REV)<br>3: External jog forward running control input              | 1             |
| P09.01                                     | Function selection of input terminals X2  | 4: External jog reverse running control input<br>5: Three-wire operation control   | 2             |
| P09.02                                     | Function selection of input terminals X3  | 6: Multi-frequency terminals 1<br>7: Multi-frequency terminals 2<br>8: Multi-frequency terminals 3<br>9: Multi-frequency terminals 4 | 0             |
| P09.03                                     | Function                                  | 10~11: Reserved  | 0             |

| Function code | Name                                     | Setting range  | Default value |
|---------------|--|--|---------------|
|               | selection of input terminals X4          | 12: Main reference frequency pulse input (valid only for X1)<br>13: Auxiliary reference frequency pulse input (valid only for X1)<br>14: Frequency increase command (UP)<br>15: Frequency decrease command (DN)<br>16: External fault normally open input<br>17: External fault normally closed input<br>18: External interrupt normally open contact input<br>19: External interrupt normally closed contact input<br>20~21: Reserved<br>22: External reset (RESET) input<br>23: Coast to stop input (FRS)<br>24: Acceleration/deceleration disable command<br>25: Stop DC braking input command<br>26~28: Reserved<br>29: Closed-loop disabled<br>30~33: Reserved<br>34: Main reference frequency source selection 1<br>35: Main reference frequency source selection 2<br>36: Main reference frequency source selection 3<br>37: Switching main reference frequency to AI<br>38: Command source selection 1 |               |
| P09.04        | Function selection of input terminals X5 |  | 0             |



| Function code | Name                          | Setting range  | Default value |
|---------------|-------------------------------|--|---------------|
|               |                               | 39: Command source selection 2<br>40: Switching command to terminal<br>41: FWD disabled<br>42: REV disabled<br>43: Drive running disabled<br>44: External stop command (it is valid for all the control modes, the device will be stopped in accordance with the current stop mode)<br>45: Auxiliary reference frequency reset<br>46: Reserved<br>47: Speed control and torque control switching terminal<br>48-52: Reserved<br>53: Torque reference pulse input terminal (valid only for X1)<br>54-59: Reserved<br>60: Emergency stop<br>61-73: Reserved<br>74: PID reference frequency pulse input (valid only for X1)<br>75: PID feedback frequency pulse input (valid only for X1) |               |
| P09.05        | FWD/REV running mode setting  | 0: Two-wire control mode 1<br>1: Two-wire control mode 2<br>2: Three-wire running control 1<br>3: Three-wire running control 2   | 0             |
| P09.06        | Terminal UP/DN acceleration/d | 0.01~99.99Hz/s   | 1.00          |

| Function code | Name                                    | Setting range  | Default value |
|---------------|---|--|---------------|
|               | eceleration rate                        |  |               |
| P09.07        | Terminal filtering time                 | 0~500ms  | 10            |
| P09.08        | Maximum input pulse frequency           | 0.1~100.0kHz   | 10.0          |
| P09.09        | Pulse reference central point selection | 0: Without central point<br>1: With central point, it is (P09.08)/2. It is positive when the frequency is less than the central point frequency<br>2: With central point, it is (P09.08)/2. It is positive when the frequency is larger than the central point frequency | 0             |
| P09.10        | Pulse reference filtering time          | 0.00~10.00s  | 0.05          |
| P09.11        | Input terminal enabled status setting   | Binary setting:<br>0: Normal logical, enabled upon connection<br>1: Inverted logical, enabled upon disconnection<br>Unit place of LED:<br>BIT0-BIT3: X1~X4<br>Tens place of LED:<br>BIT0-BIT3: X5  | 00H           |
| P09.12        | Virtual input terminal                  | Binary setting:<br>0: Disabled   | 00H           |

| Function code | Name  | Setting range   | Default value |
|---------------|---|---|---------------|
|               | setting   | 1: Enabled<br>Unit place of LED:<br>BIT0~BIT3: X1~X4<br>Tens place of LED:<br>BIT0~BIT3: X5   |               |
| P09.13        | Output selection of Multi-functional output terminal Y1 | 0: Open collector output terminal Y1<br>1: DO terminal output   | 0             |
| P09.14        | Open collector output terminal Y1                       | 0: Drive in running state signal (RUN)<br>1: Frequency arrival signal (FAR)<br>2: Reserved  | 0             |
| P09.15        | Open collector output terminal Y2                       | 3: Frequency level detection signal (FDT)<br>4: Reserved  | 1             |
| P09.16        | Relay R1 output function selection                      | 5: Overload detection signal (OL)<br>6: Lockout for under-voltage (LU)<br>7: External fault stop (EXT)<br>8: Frequency upper limit (FHL)<br>9: Frequency lower limit (FLL)<br>10: Drive running at zero-speed<br>11~14: Reserved<br>115: Drive ready for running (RDY)<br>16: Drive fault<br>17: Host device switch signal<br>18~19: Reserved<br>20: Drive FWD/REV indication terminal<br>21~24: Reserved | 15            |
| P09.17        | Output  | Binary setting:   | 0             |

| Function code | Name                                    | Setting range  | Default value |
|---------------|---|--|---------------|
|               | terminal enabled status setting         | 0: Enabled upon connection<br>1: Enabled upon disconnection<br>Unit place of LED:<br>BIT0~BIT3:Y1、Y2、R1  |               |
| P09.18        | Relay R output delay                    | 0.1~10.0s  | 0.1           |
| P09.19        | Frequency arrival (FAR) detection width | 0.0~P02.13   | 2.5           |
| P09.20        | FDT level upper limit                   | P09.21~P02.13  | 50.0          |
| P09.21        | FDT level lower limit                   | 0.0~P09.20   | 49.0          |
| P09.22        | DO terminal output                      | 0: No function<br>1: Output frequency<br>2: Set frequency (0~Maximum output frequency)<br>3: Output current lei (0~2 * lei)<br>4: Output current lem (0~2 * lem)<br>5: Output torque (0~3 * Tem)<br>6: Reserved<br>7: Motor rotating speed (0~Maximum output frequency)<br>8: Output voltage (0~1.5 * Ve)<br>9: Adjusted AI1 (0~10V/4~20mA)<br>10: Adjusted AI2 (0~10V/4~20mA)<br>11: Reserved<br>12: Output power (0~2*Pe)<br>13~15: Reserved | 0             |

| Function code                                      | Name                                 | Setting range  | Default value |
|--|--------------------------------------|--|---------------|
|  |                                      | 16: Torque reference (0~3Tem)<br>17: Percentage of host device (0~65535)<br>18~19: Reserved  |               |
| P09.23   | Maximum output pulse frequency       | 0.1~50.0   | 10.0          |
| P09.24   | Pulse output central point selection | 0: Without central point<br>1: With central point<br>It is (P09.23)/2. It is positive when the frequency is less than the central point frequency<br>2: With central point<br>It is (P09.23)/2. It is positive when the frequency is larger than the central point frequency | 0             |
| P09.25   | Pulse output filtering time          | 0.00~10.00s  | 0.05          |
| Group P10: Analog input/output terminal parameters |                                      |  |               |
| P10.00   | Analog input properties              | Unit place: AI1<br>0: Voltage input<br>1: Current input<br>Tens place: AI2<br>0: Voltage input<br>1: Current input   | 00H           |
| P10.01   | Analog AI function selection         | Unit place of LED: AI1 function selection<br>0: No function<br>1: Main reference frequency setting<br>2: Auxiliary reference frequency setting<br>3~7: Reserved  | 00H           |

| Function code | Name                            | Setting range  | Default value |
|---------------|---------------------------------|--|---------------|
|               |                                 | 8: Torque command (reference)<br>Tens place of LED: AI2 function selection is the same as AI1  |               |
| P10.02        | AI1 zero offset                 | -100.0%~100.0%   | 0.0           |
| P10.03        | AI1 gain                        | 0.00~10.00   | 1.00          |
| P10.04        | AI1 filtering                   | 0.000~10.000s  | 0.010         |
| P10.05        | AI1 zero offset correction mode | 0: Bias as a center<br>1: Higher than the bias is equal to the bias<br>2: Higher than the bias is equal to the bias<br>3: Bias as a center and get the absolute value  | 0             |
| P10.06        | AI2 zero offset                 | -100.0%~100.0%   | 0.0           |
| P10.07        | AI2 gain                        | 0.00~10.00   | 1.00          |
| P10.08        | AI2 filtering                   | 0.000~10.000s  | 0.010         |
| P10.09        | AI2 zero offset correction mode | The same as P10.05   | 0             |
| P10.10        | Curve selection                 | Unit place of LED: AI1 curve selection<br>0: Curve 1<br>1: Curve 2<br>Tens place of LED: AI2 curve selection<br>0: Curve 1<br>1: Curve 2<br>Hundreds place of LED: Pulse input curve selection<br>0: Curve 1<br>1: Curve 2 | 000H          |

| Function code | Name   | Setting range  | Default value |
|---------------|--|--|---------------|
| P10.11        | Maximum reference of curve 1                                 | P10.13~100.0%  | 100.0         |
| P10.12        | Actual value corresponds to the maximum reference of curve 1 | Frequency reference: 0.0~100.0% of Fmax<br>Torque: 0.0~300.0% of Te<br>Process closed loop reference: synchronous speed of 0.0~100.0% maximum frequency (ie., the corresponding analog input of 0~10V) | 100.0         |
| P10.13        | Minimum reference of curve 1                                 | 0.0%~P10.11  | 0.0           |
| P10.14        | Actual value corresponds to the minimum reference of curve 1 | The same as P10.12   | 0.0           |
| P10.15        | Maximum reference of curve 2                                 | P10.17~100.0%  | 100.0         |
| P10.16        | Actual value corresponds to the maximum reference of curve 2 | The same as P10.12   | 100.0         |
| P10.17        | Minimum reference of   | 0.0%~P10.15  | 0.0           |

| Function code | Name   | Setting range  | Default value |
|---------------|--|--|---------------|
|               | curve 2  |  |               |
| P10.18        | Actual value corresponds to the minimum reference of curve 2 | The same as P10.12   | 0.0           |
| P10.19        | Types of analog output                                       | Unit place of LED: AO1 selection<br>0: 0~10V(0~20mA)<br>1: 2~10V(4~20mA)<br>Tens place of LED: AO2 selection<br>0: 0~10V(0~20mA)<br>1: 2~10V(4~20mA)   | 00H           |
| P10.20        | Analog output terminal AO1 functions                         | 0: Output frequency (0~ maximum frequency)<br>1: Set frequency (0~ maximum frequency)<br>2: Set frequency (after acceleration/deceleration) (0~ maximum frequency)<br>3: Motor rotating speed (0~ maximum rotating speed)<br>4: Output current (0~2*Ie)<br>5: Output current (0~2*Iem)<br>6: Output torque (0~3 * Tem)<br>7: Reserved<br>8: Output voltage (0~1.2*Ve)<br>9: Bus voltage (0~800V)<br>10: AI1 after adjustment<br>11: AI2 after adjustment | 0             |

| Function code                           | Name                                 | Setting range   | Default value |
|---|--------------------------------------|---|---------------|
|   |                                      | 12: Reserved<br>13: Output power (0~2*Pe)<br>14: Percentage of host device (0~4095)<br>15~17: Reserved<br>18: Torque command (+10V/+300%)<br>19~20: Reserved<br>21: Output torque (-300.0~+300.0%)<br>22~23: Reserved<br>24: Motor rotating speed (bipolar, output frequency during V/F – slip compensation)<br>25~26: Reserved |               |
| P10.21                                  | AO1 filtering                        | 0.000~20.000s   | 0.010         |
| P10.22                                  | AO1 gain                             | 0.0%~200.0%   | 100.0         |
| P10.23                                  | AO1 zero offset correction           | -100.0%~100.0%  | 0.0           |
| P10.24                                  | Analog output terminal AO2 functions | The same as P10.20  | 0             |
| P10.25                                  | AO2 filtering                        | 0.000~20.000s   | 0.010         |
| P10.26                                  | AO2 gain                             | 0.0%~200.0%   | 100.0%        |
| P10.27                                  | AO2 zero offset correction           | -100.0%~100.0%  | 0.0           |
| Group P12: Advanced function parameters |                                      |   |               |
| P12.00                                  | Energy-saving running                | 0: Disabled<br>1: Enabled   | 0             |

| Function code | Name   | Setting range   | Default value |
|---------------|--|---|---------------|
| P12.01        | Carrier wave frequency                             | 0.7~15.0kHz   | 8.0           |
| P12.02        | PWM mode optimization                              | Unit place: enable the over-modulation<br>0: Disabled<br>1: Enabled<br>Tens place: automatic adjustment selection for carrier wave frequency<br>0: No automatic adjustment<br>1: Automatic adjustment<br>Hundreds place: modulation mode<br>0: Two-phase/ three-phase switching<br>1: Three-phase modulation<br>Thousands place: low frequency carrier limit<br>0: Disable<br>1: Enable | 1001H         |
| P12.03        | Current loop proportional gain ACR-P               | 1~5000  | 600           |
| P12.04        | Current loop integral time ACR-I                   | 0.5~100.0ms   | 8.0           |
| P12.05        | Anti-trip function enabling                        | 0~1   | 0             |
| P12.06        | Frequency reduction rate upon voltage compensation | 0.00~99.99Hz/s  | 10.00         |

| Function code                                  | Name                                    | Setting range | Default value |
|--|---|---------------|---------------|
| P12.07   | Pre-magnetizing time                    | 0.0~10.0s     | 0.1           |
| P12.08   | Minimum flux reference value            | 10%~150%      | 10            |
| P12.09   | Flux-weakening adjustment coefficient 1 | 0~10000       | 1000          |
| P12.10   | Flux-weakening adjustment coefficient 2 | 0~10000       | 1000          |
| P12.11   | Flux-weakening control mode             | 0~1           | 1             |
| P12.12~P12.14                                  | Reserved                                |               |               |
| <b>Group P13: Multi-stage speed parameters</b> |   |               |               |
| P13.00   | Multi-stage frequency 1                 | P02.14~P02.13 | 5.0           |
| P13.01   | Multi-stage frequency 2                 |               | 10.0          |
| P13.02   | Multi-stage frequency 3                 |               | 20.0          |
| P13.03   | Multi-stage frequency 4                 |               | 30.0          |
| P13.04   | Multi-stage frequency 5                 |               | 40.0          |
| P13.05   | Multi-stage frequency 6                 |               | 45.0          |

| Function code                            | Name                        | Setting range   | Default value |
|--|-----------------------------|---|---------------|
| P13.06                                   | Multi-stage frequency 7     |   | 50.0          |
| P13.07                                   | Multi-stage frequency 8     |   | 5.0           |
| P13.08                                   | Multi-stage frequency 9     |   | 10.0          |
| P13.09                                   | Multi-stage frequency 10    |   | 20.0          |
| P13.10                                   | Multi-stage frequency 11    |   | 30.0          |
| P13.11                                   | Multi-stage frequency 12    |   | 40.0          |
| P13.12                                   | Multi-stage frequency 13    |   | 45.0          |
| P13.13                                   | Multi-stage frequency 14    |   | 50.0          |
| P13.14                                   | Multi-stage frequency 15    |   | 50.0          |
| <b>Group P14: Process PID parameters</b> |                             |   |               |
| P14.00                                   | Reference channel selection | 0: Digital reference<br>1: AI1 analog reference<br>2: AI2 analog reference<br>3: Terminal PULSE reference<br>4: Serial port communication reference | 0             |
| P14.01                                   | Feedback channel selection  | 0: AI1 analog reference<br>1: AI2 analog reference<br>2: AI1+AI2<br>3: AI1-AI2<br>4: MIN (AI1,AI2)  | 0             |

| Function code | Name                          | Setting range   | Default value |
|---------------|-------------------------------|---|---------------|
|               |                               | 5: MAX (AI1,AI2)<br>6: Terminal PULSE reference   |               |
| P14.02        | Reference channel filtering   | 0.01~50.00s   | 0.50          |
| P14.03        | Feedback channel filtering    | 0.01~50.00s   | 0.50          |
| P14.04        | PID digital reference         | -100.0%~100.0%  | 0.0           |
| P14.05        | Proportional gain KP          | 0.000~10.000  | 2.000         |
| P14.06        | Integral gain Ki              | 0.000~10.000  | 0.100         |
| P14.07        | Reserved                      |   |               |
| P14.08        | Sampling cycle                | 0.01~50.00s   | 0.50          |
| P14.09        | Output filtering time         | 0.01~10.00s   | 0.05          |
| P14.10        | Deviation limit               | 0.0~20.0%(Corresponds to PID reference)   | 2.0           |
| P14.11        | PID adjustment feature        | 0: Positive interaction<br>1: Reverse interaction<br>Note: Adjust the relationship between the reference and the speed                                      | 0             |
| P14.12        | Integral adjustment selection | 0: Frequency reaches the upper and lower limit, stop integral adjustment<br>1: Frequency reaches the upper and lower limit ,continue the integral regulator | 0             |

| Function code                       | Name                               | Setting range   | Default value |
|-------------------------------------|------------------------------------|---|---------------|
| P14.13                              | PID pre-set frequency              | 0~2000.0Hz  | 0.0           |
| P14.14                              | Pre-set frequency retention time   | 0.0~3600.0s   | 0.0           |
| P14.15                              | PID output reverse selection       | 0: PID output is negative, 0 frequency operation<br>1: PID output is negative, reverse<br>Note: When PID output as auxiliary frequency always 1   | 0             |
| P14.16                              | PID feedback loss action selection | 0: PID lost no action<br>1: When the action continues to run at the current set frequency, no fault signal output, display alarm<br>2: When the action coast to stop, a fault signal output | 0             |
| P14.17                              | PID feedback lost detection value  | 0.0~100.0%<br>The maximum output frequency is 100%.   | 0.0           |
| P14.18                              | PID feedback lost detection time   | 0.0~25.0s   | 1.0           |
| Group P15: Communication parameters |                                    |   |               |
| P15.00                              | Protocol selection                 | 0: MODBUS<br>1: Reserved  | 0             |
| P15.01                              | Communication configuration        | Unit place of LED: Baud rate selection<br>0: 4800bps<br>1: 9600 bps<br>2: 19200 bps   | 001H          |

| Function code                                     | Name                                 | Setting range   | Default value |
|---|--------------------------------------|---|---------------|
|   |                                      | 3: 38400 bps<br>Tens place of LED: Data format<br>0: 1-8-2-N format, RTU<br>1: 1-8-1-E format, RTU<br>2: 1-8-1-O format, RTU<br>3: 1-7-2-N format, ASCII<br>4: 1-7-1-E format, ASCII<br>5: 1-7-1-O format, ASCII<br>Hundreds place of LED: Wiring mode<br>0: Direct cabling (232/485)<br>1: MODEM (232)                   |               |
| P15.02  | Local address                        | 0~247, 0 is the broadcast address   | 5             |
| P15.03  | Communication timeout detection time | 0.0~1000.0s   | 0.0           |
| P15.04  | Response delay of the drive          | 0~1000ms  | 5             |
| <b>Group P97: Protection and fault parameters</b> |                                      |   |               |
| P97.00  | Protection action selection 1        | Unit place of LED: Action upon communication fault<br>0: Activate protection and coast to stop<br>1: Alarm and keep running<br>2: Alarm and stop in the stop mode (only in serial port control mode)<br>3: Alarm and stop in the stop mode (in all control modes)<br>Tens place of LED: Action upon contactor abnormality | 0000H         |

| Function code | Name                          | Setting range  | Default value |
|---------------|-------------------------------|--|---------------|
|               |                               | 0: Activate protection and coast to stop<br>1: Alarm and keep running<br>Hundreds place of LED: Action upon EEPROM abnormality<br>0: Activate protection and coast to stop<br>1: Alarm and keep running<br>Thousands place of LED: Action upon 24V/10V short circuit<br>0: Activate protection and coast to stop<br>1: Alarm and keep running  |               |
| P97.01        | Protection action selection 2 | Unit place of LED: Action upon phase loss<br>0: Activate protection upon input and output phase loss<br>1: No protection upon input phase loss<br>2: No protection upon output phase loss<br>3: No protection upon input and output phase loss<br>Tens place of LED: Action upon analog input (AI1, AI2) fault<br>0: Activate protection and decelerate<br>1: Activate protection and coast to stop<br>2: Alarm and keep running | 00H           |
| P97.02        | Fault indication selection 1  | Unit place of LED: Action upon under-voltage fault indication<br>0: No action<br>1: Action (under-voltage is regarded as a kind of fault)<br>Tens place of LED: Action upon auto-reset interval fault indication   | 000H          |



| Function code | Name                                  | Setting range  | Default value |
|---------------|---------------------------------------|--|---------------|
|               |                                       | 0 : No action<br>1 : Action<br>Hundreds place of LED: Fault lockup function selection<br>0 : Prohibited<br>1 : Open (without fault output)<br>2 : Open (with fault output)   |               |
| P97.03        | Overload protection setting for motor | Unit place of LED: Overload compensation mode<br>0: No action<br>1: Common motor (with low-speed compensation)<br>2: Variable-frequency motor (without low-speed compensation)<br>Tens place of LED: Overload pre-alarm detection selection<br>0: Always detect<br>1: Detect only at constant speed<br>Hundreds place of LED: Overload pre-alarm action selection<br>0: Alarm and keep running<br>1: Activate protection and coast to stop<br>Thousands place of LED: Overload detection level selection<br>0: Relative to rated current of the motor (Er.OL2)<br>1: Relative to rated current of the drive (Er.oL1) | 0001H         |
| P97.04        | Overload pre-alarm                    | 20.0%~200.0%   | 130.0         |

| Function code | Name   | Setting range   | Default value |
|---------------|--|---|---------------|
|               | detection level                                |   |               |
| P97.05        | Overload pre-alarm detection time              | 0.0~60.0s   | 5.0           |
| P97.06        | Over-voltage stall selection                   | 0: Disabled (when the braking resistor is installed)<br>1: Enabled  | 1             |
| P97.07        | Over-voltage point at stall                    | 120.0%~150.0%Udce   | 140.0%        |
| P97.08        | Auto current limiting action selection         | 0: Disabled at constant speed<br>1: Enabled at constant speed<br>Note: Always enabled for acceleration/deceleration   | 1             |
| P97.09        | Auto current limiting level                    | 20.0%~200.0%le  | 150.0         |
| P97.10        | Frequency reduction rate upon current limiting | 0.0~99.99Hz/s   | 10.00         |
| P97.11        | Reserved                                       |   |               |
| P97.12        | Reserved                                       |   |               |
| P97.13        | The first fault type                           | 0: No abnormal record<br>1: Over-current during the drive acceleration (Er.oC1)<br>2: Over-current during the drive deceleration (Er.oC2)<br>3: Over-current when the drive is running with constant speed (Er.oC3)<br>4: Over-voltage during the drive | 0             |

| Function code | Name | Setting range   | Default value |
|---------------|------|---|---------------|
|               |      | acceleration (Er.oU1)<br>5: Over-voltage during the drive<br>deceleration (Er.oU2)<br>6: Over-voltage when the drive is running with constant speed (Er.oU3)<br>7: Reserved<br>8: Input side phase loss (Er.IrF)<br>9: Output side phase loss (Er.odF)<br>10: Power module protection (Er.drv)<br>11: Inverter bridge over-temperature (Er.oH1)<br>12: Reserved<br>13: Drive overload (Er.oL1)<br>14: Motor overload (Er.oL2)<br>15: External fault (Er.EFT)<br>16: EEPROM read-write error (Er.EEP)<br>17: Abnormal serial port communication (Er.SC1)<br>18: Abnormal contactor (Er.rLy1)<br>19: Abnormal current detection circuit (Er.CUr)<br>20: Reserved<br>21: PID feedback lost (Er.FbL)<br>22: Reserved<br>23: Keyboard parameter copy error (Er.CoP)<br>24: Poor auto-tuning (Er.TUn)<br>25~27: Reserved<br>28: Parameter setting error (Er.PST)<br>29: Control board 24V power short circuit |               |

| Function code | Name                            | Setting range  | Default value |
|---------------|---------------------------------|--|---------------|
|               |                                 | (Er.24v)<br>30~40: Reserved<br>41: Abnormal AI analog input fault (Er.AIF)<br>42: Inverter module temperature sampling disconnection protection (Er.THI)<br>43: Reserved<br>44: Short circuit of 10V power (Er.10v)<br>Others: Reserved<br>Note:<br>1. Er.drv fault can not be reset until 10s later;<br>2. For continuous over-current less than 3 times (including 3 times), it can not be reset until 6s later; if it is more than 3 times, it can not be reset until 200s later;<br>3. The keyboard displays AL.xxx in case of any fault (e.g. in case of the contactor fault, keyboard displays Er.xxx if there is protection action, and displays AL.xxx if continuing running with alarm) |               |
| P97.14        | The second fault type           | The same as P97.13   | 0             |
| P97.15        | The third fault type            | The same as P97.13   | 0             |
| P97.16        | DC bus voltage at the 3rd fault | 0~999V   | 0V            |
| P97.17        | Actual current                  | 0.0~999.9A   | 0.0           |

| Function code               | Name                                  | Setting range                               | Default value        |
|-----------------------------|---------------------------------------|---|----------------------|
|                             | at the 3rd fault                      |   |                      |
| P97.18                      | Running frequency at the 3rd fault    | 0.0~2000.0Hz                                | 0.0                  |
| P97.19                      | Drive running status at the 3rd fault | 0~FFFFH                                     | 0000                 |
| Group P98: Drive parameters |                                       |   |                      |
| P98.00                      | Serial No.                            | 0~FFFFH                                     | Manufacturer setting |
| P98.01                      | MCU software version No.              | 0.00~99.99                                  | Manufacturer setting |
| P98.02                      | User-customized version No.           | 0~9999                                      | Manufacturer setting |
| P98.03                      | DSP software version No.              | 0.00~99.99                                  | Manufacturer setting |
| P98.04                      | Rated capacity                        | Output power,0~999.9kVA(Depending on model) | Manufacturer setting |
| P98.05                      | Rated voltage                         | 0~999V(Depending on model)                  | Manufacturer setting |
| P98.06                      | Rated current                         | 0~999.9A(Depending on model)                | Manufacturer setting |
| P98.07                      | Drive series selection                | 0:220V<br>1:380V                            | Manufacturer setting |

## Chapter 5 Troubleshooting

### Displaying exception and solutions

All possible fault types for MV100 are summarized as shown in table 5-1. Before consulting the service department, the user can perform self-check according to the hints of the table and record the fault symptoms in detail. To seek for service support, please contact the sales person.

Table 5-1 Fault record table

| Fault code | Fault type                               | Possible fault cause  | Solutions  |
|------------|--|---|--|
| Er.oC1     | Acceleration over-current of the drive   | The acceleration time is too short.                                       | Lengthen the acceleration time                                   |
|            |  | The motor parameters are incorrect.                                       | Perform the parameter auto-tuning of the motor                   |
|            |  | When instantaneous stop happens, restart the rotating motor               | Set the start mode P08.00 as the speed tracking restart function |
|            |  | The drive power is too low.   | Adopt the drive with high power class                            |
|            |  | V/F curve is improper.  | Adjust the V/F curve setting and the manual torque increase      |
| Er.oC2     | Deceleration over-current of the drive   | The deceleration time is too short.                                       | Lengthen the deceleration time                                   |
|            |  | There is potential energy load or the load inertial torque is large.      | Use additionally appropriate dynamic braking components          |
|            |  | The drive power is low.   | Adopt the drive with high power class                            |
| Er.oC3     | Constant speed over-current of the drive | The acceleration/deceleration time is too short.                          | Lengthen the acceleration/deceleration time appropriately        |
|            |  | Sudden load change or abnormal load                                       | Check the load   |
|            |  | Low grid voltage  | Check the input power supply                                     |
|            |  | The drive power is low  | Adopt the drive with high power class                            |
| Er.oU1     | Acceleration over-voltage of the drive   | Abnormal input voltage  | Check the input power supply                                     |
|            |  | Acceleration time is too short.   | Lengthen the acceleration time appropriately                     |
|            |  | When instantaneous stop happens, restart the rotating motor               | Set the start mode P08.00 as the speed tracking restart function |
| Er.oU2     | Deceleration over-voltage of the drive   | The deceleration time is too short (compared with regeneration energy).   | Lengthen the deceleration time                                   |
|            |  | There is potential energy load or the load inertial torque is large.      | Select appropriate dynamic braking components                    |
| Er.oU3     | Constant speed over-voltage of the drive | When the vector control functions, the ASR parameter setting is improper. | See the ASR parameter setting of Group P05                       |

| Fault code | Fault type                                | Possible fault cause   | Solutions   |
|------------|---|--|---|
|            |   | The acceleration/deceleration time is too short.                                     | Lengthen the acceleration/deceleration time appropriately |
|            |   | Abnormal input voltage   | Check the input power supply                              |
|            |   | The input voltage fluctuates abnormally  | Install the input reactor                                 |
|            |   | Large load inertia   | Adopt dynamic braking components                          |
| Er.lrf     | Input side phase loss                     | There is phase loss in input R.S.T.  | Check the installation wiring<br>Check the input voltage  |
| Er.odf     | Output side phase loss                    | There is phase loss in output U.V.W.   | Check the output wiring<br>Check the motor and the cables |
| Er.driv    | Power module protection                   | There is interphase short circuit or grounding short circuit in output three phases. | Rewiring and check if the motor insulation is good.       |
|            |   | Instantaneous over-current of the drive  | See the over-current solutions                            |
|            |   | The duct is blocked or the fan is damaged.   | Unblock the duct or replace the fan                       |
|            |   | The ambient temperature is too high.   | Lower the ambient temperature                             |
|            |   | The wirings or the plug-in units of the control board loosens.                       | Check them and rewiring                                   |
|            |   | Abnormal current waveform caused by output phase loss and so on                      | Check the wiring  |
|            |   | The auxiliary power supply is damaged; the drive voltage is insufficient.            | Seek for service support                                  |
|            |   | Inverter module bridging conduction  | Seek for service support                                  |
|            |   | Abnormal control board   | Seek for service support                                  |
|            |   | Braking pipe damaged   | Seek for service support                                  |
| Er.oH1     | Inverter module heatsink over-temperature | The ambient temperature is too high.   | Lower the ambient temperature                             |
|            |   | The duct is blocked.   | Clean the duct  |

| Fault code | Fault type                                | Possible fault cause  | Solutions   |
|------------|---|---|---|
|            |   | The fan is damaged.   | Replace the fan   |
|            |   | The inverter module is abnormal.  | Seek for service support  |
| Er.oL1     | Drive overload                            | The motor parameters are incorrect.                                     | Perform the parameter auto-tuning of the motor                            |
|            |   | The load is too large.  | Adopt the drive with higher power   |
|            |   | The DC braking amount is too large.                                     | Reduce the DC braking current and lengthen the braking time               |
|            |   | When instantaneous stop happens, restart the rotating motor             | Set the start mode P08.00 as the speed tracking restart function          |
|            |   | The acceleration time is too short.                                     | Lengthen the acceleration time  |
|            |   | The grid voltage is too low.  | Check the grid voltage  |
|            |   | V/F curve is improper.  | Adjust V/F curve and torque increase                                      |
|            |   |   |   |
| Er.oL2     | Motor overload                            | The motor overload protection factor setting is incorrect.              | Set the overload protection factor of motor correctly.                    |
|            |   | The motor is blocked or the sudden change of load is too large.         | Check the load  |
|            |   | The universal motor runs at low speed for a long time, with heavy load. | If long-term low-speed running is required, special motor should be used. |
|            |   | The grid voltage is too low.  | Check the grid voltage  |
|            |   | V/F curve is improper.  | Set V/F curve and torque increase correctly                               |
| Er.EFT     | Emergency stop or external device fault   | Stop suddenly by pressing the STOP key                                  | See the function definition of the STOP key in P00.04                     |
|            |   | External fault emergency-stop terminal is enabled.                      | After the external fault is revoked, release the external fault terminal  |
| Er.EEP     | EEPROM read/write fault                   | The read/write error of the control parameters occurs.                  | Reset by pressing the STOP/RESET key, seek for service support            |
| Er.SC1     | Abnormal remote serial port communication | The baud rate is set improperly.  | Set the baud rate properly.   |
|            |   | Serial port communication error   | Reset by pressing the STOP/RESET key, seek for service support            |
|            |   | The fault alarm parameters are set                                      | Modify the P15.03 and P97.00 settings                                     |

| Fault code | Fault type                              | Possible fault cause  | Solutions   |
|------------|---|---|---|
|            |   | improperly.   |   |
|            |   | The host device does not work.  | Check if the host device is working and if the wiring is correct.   |
| Er.rLy     | Abnormal contactor                      | The grid voltage is too low.  | Check the grid voltage  |
|            |   | The contactor is damaged.   | Replace the contactor of the main circuit, seek for service support   |
|            |   | The power-up buffer resistance is damaged.  | Replace the buffer resistance, seek for service support   |
|            |   | The control circuit is damaged.   | Seek for service support  |
|            |   | Input phase loss  | Check the input R.S.T. wiring   |
| Er.CUr     | Current detection circuit abnormal      | Current detection device damage   | Seek for service support  |
|            |   | The amplifying circuit is abnormal.   | Seek for service support  |
| Er.FbL     | Closed loop feedback loss               | The parameters for feedback loss are set improperly.  | Modify the P14.17 setting   |
|            |   | Feedback wire-break   | Rewiring  |
|            |   | The reference of closed loop feedback value is too low.   | See the P14.01 setting and increase the feedback reference  |
| Er.CoP     | Operation panel parameter copying error | The operation panel parameters are incomplete or the operation panel version is inconsistent with main control panel version. | Refresh the operation panel data and version, use P00.03=1 for uploading the parameters first and then use P00.03=2 or 3 for downloading. |
|            |   | The operation panel EEPROM is damaged.  | Seek for service support  |
| Er.TUn     | Poor auto-tuning                        | The nameplate parameters of the motor are incorrect.  | Set the parameters properly according to the motor nameplate  |
|            |   | When reverse running is prohibited, reverse rotating auto-tuning is performed.  | Cancel the reverse running prohibition  |
|            |   | Auto-tuning overtime  | Check motor wiring<br>Check the P02.13 (upper limit frequency) and see whether the P03.03 set value is lower than rated frequency.        |

| Fault code  | Fault type   | Possible fault cause  | Solutions   |
|---|--|---|---|
| Er.PST  | Parameter setting error                            | Wrong analog AI function selection setting                                      | The same function shall not be selected for different analogs simultaneously. |
| Er.24v  | Control board 24V power short circuit              | Short circuit of P24 and terminal COM   | Confirm whether the wiring of P24 and COM is correct                          |
| Er.AIF  | Abnormal AI analog input                           | Abnormal control circuit  | Seek for service support  |
|   |  | The input analog is out of the range and the absolute value is greater than 11V | Check the analog input  |
| Er.THI  | Inverter module temperature sampling disconnection | Abnormal temperature sampling circuit   | Seek for service support  |
|   |  | The inverter module temperature sampling wire is poorly connected.              | Check the inverter module temperature sampling wire connection                |
| Er.10v  | Control board $\pm 10V$ power short circuit        | $\pm 10V$ grounding   | Confirm whether the $\pm 10V$ wiring is correct                               |
|   |  | The interface board circuit is damaged.   | Replace the interface board, seek for service support                         |
| <p>Note:</p> <ol style="list-style-type: none"> <li>Er.drv fault can not be reset until 10s later;</li> <li>For continuous over-current less than 3 times (including 3 times), it can not be reset until 6s later; if it is more than 3 times, it can not be reset until 200s later;</li> <li>The keyboard displays AL.xxx in case of any fault (e.g. in case of the contactor fault, keyboard displays Er.xxx if there is protection action, and displays AL.xxx if continuing running with alarm).</li> </ol> |  |   |   |



